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GEOGRAPHICAL RECORD

AMERICAN GEOGRAPHICAL SOCIETY

Roosevelt Geographical Exhibit. From October 18 to October 26 the American Geographical Society, in co-operation with the Roosevelt Memorial Association, held an exhibit dealing with Colonel Roosevelt's geographical activities. There were shown the official map of the "River of Doubt," autograph unpublished letters of Colonel Roosevelt and Colonel Rondon, his Brazilian associate, throwing light on his exploration of the river, and other material relating to his South American and African expeditions. Replicas of the gold medals awarded to Colonel Roosevelt and Colonel Rondon by the American Geographical Society were also on view, as well as the autograph copy of Colonel Roosevelt's address to the Society (see the *Review* for April, 1917) at the time of the award—just before the entry of the United States into the war—which ends with the passage: "We must put service first—not safety first; and we must act with that lofty and noble idealism which expends itself, not in empty words, but in action which recognizes the elemental fact that those men only are fit to live who are not afraid to die."

NORTH AMERICA

The Culture of the Southern States. Some of the recent writings of Dr. Roland M. Harper may serve as an antidote to the self-satisfaction which the Northern States are apt to feel because of their obvious achievements in certain lines of material effort. Whether they agree with him or not, geographers ought at least to think the matter over when he presents statistics which seem to him, for example, to show that illiteracy "is not such a menace as some persons seem to think. . . . Perhaps the ideal state of civilization would be to have about 6 per cent of the adult population illiterate and about the same number college graduates, and the rest distributed uniformly through the intermediate grades" (Illiteracy in Alabama: Where and Why, *Montgomery (Ala.) Advertiser*, June 1, 1919). Again: "Some Northern writers who know so little about the South that they are prejudiced against it claim that the presence of an inferior race in large numbers is bound to lower the standards of the dominant race; but I have recently worked out some statistics that show exactly the opposite tendency. . . . Where negroes are most numerous the whites are most prosperous and cultured" (High Living Standards in "Black" Counties in the Southeastern United States, *Montgomery Advertiser*, March 28, 1919). In still another paper (The Distribution of Illiteracy in Georgia and Its Significance, *High School Quarterly*, Athens, Ga., Vol. 7, 1919, pp. 254-262) Harper advances the idea that compulsory education is the cause of the undeniably great amount of illiteracy in some of the manufacturing cities of the North. "Compulsory education . . . tends to create a vacuum at the bottom of the industrial scale, which can be filled in part by using child labor, or better by importing immigrants old enough to be exempt from the education laws, from states or countries that have no such laws."

It would be easy to criticize these statements, but there is no denying the value and interest of certain facts which lie back of them. For example, in Alabama, Mississippi, and Louisiana the nine counties—or parishes as they are called in Louisiana—which have the greatest percentage of negroes rank at the very top in the value of the farm buildings of the few whites, while the number of white children who go to college is also above the general average. This illustrates a general and striking fact, which Harper brings out clearly: "Not only in Georgia, but also in other Southeastern States, where negroes are most numerous the contrast between the two races in education is greatest." This does not mean merely that the negroes in such isolated regions are ignorant because of their isolation from the white man but that the few whites are above the average for that part of the country in education and wealth. It means also, although Harper does not say it, that in such regions the social demarcation between white and colored, and also the contrast in the amount of land per individual, are at a maximum. There more than elsewhere the whites still own and control the land and presumably are above the average in inherited ability. Other whites of lower grade do not come because there is

little land for sale and because they do not care to compete with the negroes. Equally interesting are Harper's figures as to the well-known but not well-appreciated fact that where colored people are in the minority they tend to congregate in the towns and cities, while when whites are in a minority they, too, do likewise.

Much of Dr. Harper's effort is directed toward an attempt to prove that the climate of the South has nothing to do with illiteracy. To this end he gives figures for the different natural regions which he has worked out in Alabama and Georgia. Thereby he proves that the local distribution of illiteracy depends upon the relative isolation of large parts of the Southern States, the comparative sparsity of population, the small proportion of urban inhabitants, the comparative lack of wealth, and the slight amount of travel except in Florida, which is more literate than its neighbors. All this is excellent, but it proves nothing about climate, for nothing is said as to the possible relation between these other factors and the climatic factor. What it does prove is the extreme diversity of the various geographic controls which determine the degree of illiteracy. It also throws a valuable light on the geography of the Southeastern States, and it is to be hoped that Dr. Harper will continue to act as their geographic champion and gather his scattered observations into a single publication.

ELLSWORTH HUNTINGTON

AFRICA

Commercial Possibilities in the Salvage Islands. The Salvage Islands claim their share of wartime romance. A group of rocky islets lying midway between Madeira and the Canaries, they have heretofore been of little interest. No permanent habitation has been made on them because of the lack of a permanent water supply. Myriads of sea birds breed there, and the surrounding waters are excellent fishing grounds. Temporary occupation has been effected by a birding and fishing company. The company sustained losses during the war through the submarine campaign that preyed so effectively on Canary Islands shipping. It was suspected, though not proved, that the submarines had a base in one of the islets. Compensation, however, came when the company "literally struck oil in the shape of the puffins." From the sale of oil and feathers collected in a few weeks the sum of \$20,000 was realized (*The African World*, London, July 26, 1919, p. 480). This is said to be the beginning of more extensive operations, and it is also suggested that the islets may yield guano deposits of commercial value.

AUSTRALASIA AND OCEANIA

Hawaiian Mean Annual Rainfall a New World Record. In connection with high-level hydrometric work in the Hawaiian Islands, engineers of the U. S. Geological Survey have found it necessary to measure the rainfall at several places at elevations up to over 5,000 feet above sea level. The records so far obtained show that Cherrapunji, the famous station in the Khasi Hills of India, whose mean annual rainfall is given as 426 inches, has a rival in Mt. Waialeale, altitude 5,080 feet, on the island of Kauai, as reported by G. K. Larrison of the U. S. Geological Survey in the *Monthly Weather Review* (Vol. 47, 1919, pp. 303-305). During a recent period with a somewhat broken record covering nearly five years between 1911 and 1917, Mt. Waialeale averaged 476 inches of rainfall annually. In this period the total precipitation on 1,782 consecutive days was 2,325 inches, or a daily average of 1.30 inches. On account of the difficulty of access the station has unfortunately been discontinued. Other stations in the islands have also given remarkable heavy rainfalls, amounting, in single years, to 562 inches in one case and 504 inches in another. The maximum daily rainfall thus far recorded was 31.95 inches at Honouliuli, Hawaii, elevation 1,200 feet (February 20, 1918).

The Hawaiian Islands have long furnished "stock" examples of great contrasts in rainfall amounts at stations separated by but a few miles of distance but differing considerably in altitude and in exposure. Starting with Mt. Waialeale, with a mean annual precipitation of 476 inches, the following records, covering practically the same period, are now available.

	ELEVATION IN FEET	RELATIVE POSI- TION IN MILES	ANNUAL RAIN- FALL IN INCHES
Mt. Waialeale.....	5,080	476
Olokele.....	2,100	2.0 S.W.	149
Kokee.....	3,550	10.5 N.W.	56
Pali Trail.....	850	11.0 S.W.	16
North Waialua.....	650	4.0 E.	126

On the island of Maui the variations are still more remarkable. Stations near Puu Kukui, elevation 5,000 feet, with a mean of 369 inches (562 inches for 1918), give the following records:

	ELEVATION IN FEET	RELATIVE POSI- TION IN MILES	ANNUAL RAIN- FALL IN INCHES
Puu Kuki.....	5,000	369
Kahoma Reservoir.....	2,000	4.0 W.	55
Kaanapali.....	12	7.5 N.W.	18
Wailuku village.....	390	5.5 S.E.	30

November, December, March, and April are usually the wettest months. The precipitation is "showery," heavy rains rarely lasting more than a few hours. On the high peaks the mornings are usually clear, and the afternoons and nights wet.

R. DEC. WARD

PHYSICAL GEOGRAPHY

Long-Range Weather Forecasting and Ocean Temperature. Long before the days of synoptic weather maps, the relation of current meteorological conditions to rising and falling pressure was known. Later, when daily weather maps were available for study, the control of the migratory areas of low and high barometer over wind and weather changes could be worked out in great detail, and modern forecasting, for short intervals of a day or two in advance, became possible. Finally, during the last decade or so, it has become clear that the general character of *seasonal* weather is largely determined by the more or less permanent "centers of action" of the atmosphere, i. e. the stationary low and high pressure areas which persist for months over continents and especially over the oceans. Thus the possibility of making long-range, or seasonal, weather forecasts has stimulated an intensive study of the controls, and the influences, of these great centers of action. To this discussion, Petterson, Meinardus, Petersen, Helland-Hansen, Nansen, and others have contributed.

In this country, Dr. Charles F. Brooks of the Weather Bureau has lately been giving attention to the same subjects (see also paper by Dr. G. F. McEwen reviewed in the *July Review*, p. 72). In a recent paper (*Monthly Weather Rev.*, Nov., 1918, pp. 510-512), Dr. Brooks asserts that if it is possible to forecast the distribution of surface water temperature a few weeks in advance, it may prove possible to forecast the general paths which will be followed by cyclones and anticyclones, and then, from the winds which will result, to make long-range forecasts of the general weather to be expected in any period. In the first place, departures from the normal of the temperatures of the ocean surface result almost wholly from variations in wind direction and velocity. This point has recently been made clear by Helland-Hansen and Nansen for the middle latitudes of the North Atlantic. Here the emphasis is laid on the importance of the wind *direction* control. In the tropics the control of sea surface temperatures is found in wind *velocity*, changes in direction being of little or no importance. A considerable plus departure of temperature, originating in the eastern Atlantic during a month of stormy trades, may be felt, eight to ten months later, off the western coast of Europe.

Secondly, the paths and the intensities of migratory cyclones and anticyclones are well known to be influenced, to a considerable extent, by the temperatures of the regions over which they travel. Thus J. Petersen has shown that the Iceland low moves to and fro between southern Greenland and the Norwegian Sea under the control of a changing distribution of water temperatures induced by its own winds.

Finally, if the probable position and intensity of the center of action can be predicted, the weather type which will result may also, in a general way, be forecast. Dr. Brooks notes that "an unusually warm Gulf Stream favors cold weather in the eastern United States, while a cool Gulf Stream favors warm weather." The unusually cold and snowy north and northeast winds which characterized the winter of 1915-16 in the Middle and North Atlantic States are ascribed to the unusually warm water which came through the Straits of Florida and, spreading over the Atlantic to the south and east of New England, produced very favorable conditions for cyclones in that region.

In the same number of the *Monthly Weather Review* possible applications to the North Pacific Region are briefly considered, and there is also an "open letter," by Professors W. E. Ritter and G. F. McEwen, on "Ocean Temperatures and Seasonal Weather in Southern California." Observations at La Jolla, Cal., show that in July-October, 1917, the ocean temperature averaged about 5°F. higher than for the same months of the preceding nine years and that the force of the northwest ocean wind for the same period was about 20 to 30 per cent below the average. These exceptional water and wind conditions were followed by exceptional winter weather. Hardly any rain fell till January, 1918, and precipitation as a whole was low for all of California.

R. DEC. WARD

HUMAN GEOGRAPHY

Natural Regions, Geographical Regions, Human Regions. The systems of classification of world regions are significant of the trend of modern geographical thought. It is nearly fifteen years since Herbertson raised a geographical landmark in his "Major Natural Regions." The subsequent trend has been signalized by Unstead in his paper "A Synthetic Method of Determining Geographical Regions" (*Geogr. Journ.*, Vol. 48, 1916). Herein he urges the delimitation of *geographical* regions, "taking into account the human equally with the physical factors." From the discussion following the paper it is, however, apparent that, while the importance of the human factor is appreciated, there is vagueness as to how the problem of interpreting it should be approached. More recently an interpretation has been offered by Dr. H. J. Fleure in "Régions humaines" (*Annales de Géographie*, May, 1917) and in a revision, "Human Regions," in the March, 1919, number of the *Scottish Geographical Magazine*. To appreciate this system of classification we must recall Dr. Fleure's conception of human geography, a conception to which attention has already been called in the *Review* (see Vol. 6, 1918, pp. 515-516). Preparatory to outlining the classification it will be well to quote a restatement of the fundamental idea. "... the continuous interaction and interpenetration of man and environment and the cumulative alteration of both man and the earth with the unfolding of history. Anthropology, history, and geography are a trilogy to be torn asunder only with severe loss of truth and of value to mankind."

Following this exposition Dr. Fleure lays down the postulate that man's activities are directed toward the accomplishment of three essential functions, viz. "nutrition, reproduction, and the increase of well-being; or life, new life, and good life." The first two, "since without those a race would disappear," are at once discarded. The third function remains as a basis for distinctions between human communities. Regions are then classified according to the measure of the earth's response to man's efforts in the pursuit of well-being.

From the viewpoint of man's search after well-being the lands that yield small return even to excessive effort are classed as "Regions of Hunger." These are represented by desert and polar districts, where even the greatest exertions barely suffice to satisfy the stern demand for food. "Regions of Debilitation" are those where enervating equatorial heat and humidity combine with the never-tiring attack of tropical vegetation to check all progress beyond the securing of the mere necessities of life. These moist, warm lands of low latitudes are not the home of ease and effortless luxury but rather are regions of excessive difficulty.

"Regions of Increment" is the term used to designate those lands which encourage man and give a generous response to his efforts. Proper alternation of rain and sun is one of the chief factors in making them favorable for human occupation. Monsoonal lands and those that, like the Mediterranean countries, receive winter rain and summer sun are typical of this class. These Regions of Increment, while requiring effort on man's part, reward him with such liberality as to leave him a surplus of food and time. Hence he may devote a part of his energy toward obtaining the higher things of life. Here arts and sciences may thrive, and man early attains an advanced degree of culture. Increasing demands with the higher standards of living that accompany developing civilization have bereft some former Regions of Increment of their character as such, reducing them to lower categories.

Intermediate types are styled "Regions of Effort," where the initial task of subduing nature is great but the effort yields fruitful result, and "Regions of Difficulty," in which material fruits are likely to be small at best. In the former the natural resources must be exploited to the fullest extent, and the search for earth's treasures of field and mine brings returns that often surpass the yield in Regions of Increment. Northern France, the British Isles, Germany, and most of the United States are typical examples of the Regions of Effort, while Regions of Difficulty are found in the high valleys of temperate zones and on the plateaus with cold winters. In these latter regions little can be done toward cultivating the so-called "good life."

The age of industry has transformed certain regions of several different types into one which stands alone, especially as regards the activities of man. This is the "Industrialized Region," represented by the great manufacturing centers of the modern world, where machinery and finance, both on enormous scale, have modified man's relation to his environment.

The final type is "Regions of Wandering," where herding and hunting are the primary forms of human activity. The influence of such regions upon civilization has been out of all proportion to their sparse population or their scanty resources. Proud, thoughtful, reverent, with a bent toward trade, the nomads, in their wanderings, have spread learning, religion, and commerce in many directions from their undependable

pasture lands, thus contributing toward the "good life" of other districts, though their own lands are doomed to remain (save for the possible intervention of man's transforming genius) the temporary abode of vagrant tribes.

Regarding the classification two points remain for special comment. In this day of drawing of new boundaries they are points whose vital importance cannot be over-emphasized. As Fawcett remarks in his able essay "Frontiers," the conception of frontiers as lines is purely subjective. It is convenient to establish a line boundary, but the actual bounds of human (as other) regions are *zones*, not *lines*. Here is a thought for political geography. On the largest scale considerable regions must be regarded as having a transitional character, and for this reason such regions are frequently of great import—the Paris Basin may be so considered as a transition between the Regions of Increment and Effort. In the second place the character of regions is liable to change. The modern Industrial Region is an example. Hydro-electrical development promises to transform certain Regions of Difficulty, and irrigation to redeem parts of the Regions of Wandering. Human relations must prepare for adjustment to transitions in time as well as in place.

Meteorology and Aviation. In the haste of preparation during the war most, if not at the start all, the teaching of meteorology at our military and naval aeronautical "ground schools" was given by men who had had no experience in flying. This was as inevitable as it was unfortunate. The instruction was naturally very largely theoretical and lacked the element of personal conviction and experience which would have done much to impress the essential facts upon the minds and memories of the young men who had enlisted in the air service.

Now that the war emergency is over and the development of peace-time commercial flying is rapidly gaining in importance, the next step is to match up the experience of the men who have actually done the flying with the theories, as these latter are now generally accepted among meteorologists. One of the earliest contributions to this discussion is that by Dr. Charles F. Brooks and others entitled "Effects of Winds and Other Weather Conditions on the Flight of Airplanes" (*Monthly Weather Rev.*, August, 1919, pp. 523-532). In this paper an attempt is made to explain on a scientific basis, for the benefit of the aviator, various meteorological phenomena which have actually been observed during the flying experience of numerous individuals. A further object is to bring together, from these experiences, a body of fact which will amplify, as well as clarify, the knowledge which meteorologists now possess regarding conditions in the free air. The special subjects dealt with are surface winds and local convectional currents, "turbulent wind boundaries," clouds and rain, thunderstorms, and air-density changes as affecting support. Several cloud pictures and a series of diagrams illustrate the article, the usefulness of which is further increased by the inclusion of a good working bibliography.

In the same number of the *Monthly Weather Review* there are additional papers on the same general subject: by C. L. Meisinger, "Balloon Race from Fort Omaha Through Thunderstorms" and "The Constant-Elevation Free-Balloon Flights from Fort Omaha"; and, by W. R. Gregg, "The Trans-Atlantic Flight of the British Dirigible R 34."

R. DEC. WARD

GEOGRAPHICAL NEWS

PERSONAL

THE DUKE OF THE ABRUZZI left Naples in October on an expedition to discover the sources of the Webi Shebeli River, which flows from Abyssinia through Italian Somaliland into the Indian Ocean.

PROFESSOR ELIOT BLACKWELDER in June resigned his position as professor of geology at the University of Illinois and since September has been devoting his time to geological research, especially regarding the history of the Rocky Mountains, with headquarters at Denver.

MR. CHARLES J. BLANCHARD of the U. S. Reclamation Service gave a series of three lectures in October and November entitled "The Northwest"; "Our Inland Empire"; "The New South." These were given in the system of public lectures conducted under the auspices of the Board of Education of the City of New York.

DR. LOUIS BLARINGHEM, professor of agricultural biology at the Sorbonne and exchange professor at Harvard University for 1918-19, gave a series of ten lectures in French in April and May on the condition and future of agriculture in France. The subject of the first lecture was "The Surface of France: Soils and Climatic Types."

MAJOR WILLIAM BOWIE, chief of the Division of Geodesy, U. S. Coast and Geodetic Survey, received the honorary degree of Doctor of Science at the commencement of Trinity College last June.

PROFESSOR J. C. BRANNER recently purchased the seismological library of Count F. de Montessus de Ballore, the eminent French seismologist, latterly director of the Seismological Service of Chile, and presented it to Stanford University. This is probably one of the most complete collections of seismological literature in existence.

DR. JAMES HENRY BREASTED, professor of Egyptology and Oriental history at the University of Chicago, spoke before the National Academy of Sciences at Washington on April 28 on "The Origin of Civilization—from the Old Stone Age to the Dawn of Civilization."

PROFESSOR J. W. CROOK of Amherst College gave a lecture on "Foreign Trade and Our New Merchant Marine" on October 31 in the system of public lectures given under the auspices of the Board of Education of the City of New York.

PROFESSOR JOVAN CVIJIĆ of the University of Belgrade was awarded the Médaille Gauthiot by the Société de Géographie Commerciale de Paris in recognition of his pre-eminent knowledge of Balkan geography, both physical and human, the most recent exposition of which is his admirable "La Péninsule Balkanique: Géographie Humaine."

PROFESSOR W. M. DAVIS was awarded the Patron's Medal of the Royal Geographical Society in June "for his eminence in the development of physical geography."

MR. FRANK DEBENHAM, a member of the scientific staff of Scott's last Antarctic expedition, has been appointed lecturer in surveying and cartography at Cambridge University.

MR. EDWARD J. FOYLES read a paper on "The Practical Use of War Maps at the Front" before the Section of Geology and Mineralogy of the New York Academy of Sciences on October 20.

MR. HOYT S. GALE of the U. S. Geological Survey, who spent several months investigating the potash resources of Europe for the Department of the Interior, made a study of the deposits of Alsace and of Stassfurt, Germany, during his stay abroad in 1919.

PROFESSOR PATRICK GEDDES has recently been appointed professor of sociology and civics in the University of Bombay. He has also undertaken to draw up plans for the restoration of the city of Jerusalem. Professor Geddes is the chief exponent of a movement in what may be termed geographical civics, the center of which is located in the so-called Outlook Tower at Edinburgh (cf. his article "Beginnings of a Survey of Edinburgh," *Scottish Geogr. Mag.*, Vol. 35, 1919, No. 8).

PROFESSOR MARK JEFFERSON gave a series of five lectures on the peace conference at the summer session of the State Normal College at Ypsilanti, Michigan. Professor Jefferson was chief of the Division of Geography of the American Commission to Negotiate Peace at Paris and representative of the United States on the commission of geographical experts of the Great Powers for the study of boundaries, from December, 1918, to July, 1919.

MR. H. J. MACKINDER, the eminent British geographer and member of Parliament, was in November appointed British High Commissioner for Southern Russia.

MR. F. E. MATTHES of the U. S. Geological Survey gave a series of lectures in the Yosemite National Park during July under the auspices of the University Extension Division of the University of California. The subjects were as follows: "Origin of Yosemite Valley as Indicated in the History of the Waterfalls"; "The Highest Ice Flood in the Yosemite Valley"; "The Origin of the Granite Domes of Yosemite."

MR. J. T. NICHOLS read a paper before the New York Academy of Sciences on May 12 on "The Relation of Ocean Currents to Fish Faunae in the Atlantic."

DR. FRANCIS ROLT-WHEELER, in the system of public lectures conducted under the auspices of the Board of Education of the City of New York, gave a number of lectures in October and November dealing with the activities of government bureaus. The bureaus discussed were the Geological Survey, Forest Service, Reclamation Service, Department of Agriculture, Department of the Interior, Indian Affairs Office, Bureau of Fisheries, Emigration Office, and Census Bureau.

PROFESSOR G. B. ROORBACH, recently of the University of Pennsylvania, has been appointed to fill the newly created chair of foreign trade at the Graduate School of Business Administration at Harvard University.

DR. J. N. ROSE of the National Museum, Washington, D. C., spoke before the Torrey Botanical Club on April 8 on "Botanical Explorations in Ecuador."

DR. H. J. SPINDEN of the American Museum of Natural History addressed the New York Academy of Sciences on April 21 on "The Eruption of a San Salvador Volcano, June 7, 1917."

MR. VILHJÁLMUR STEFÁNSSON was recently awarded the La Roquette gold medal of the Société de Géographie de Paris in recognition of discoveries made by the Canadian Arctic Expedition under his command during the years 1913-18.